

CLAIMS

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-21 (Canceled)

22. (Currently amended) A system for treating patients suffering from movement disorder, comprising

a pulse generator capable of generating an electrical signal comprising a predetermined sequence of electrical pulses, and

at least ~~two~~one electrodes electrically coupled to the pulse generator, said at least two electrodes adapted to be being implanted in the patient's body and coupled to, respectively, one of the right and left branches of the a-vagus nerve of the patient at a location in a range from about two to about three inches above or below the patient's diaphragm, for alleviating symptoms of the movement disorder in the patient;

wherein, when implanted, said at least two electrodes apply said electrical signal bilaterally to the right and left branches of the vagus nerve from a location in the vicinity of the patient's diaphragm.

23. (Previously Presented) The system of claim 22, wherein said pulse generator is programmable to enable physician programming of a plurality of parameters defining said sequence of electrical pulses.

24. (Currently amended) The system of claim 22, wherein the at least ~~one~~two electrodes ~~are~~is each adapted to be directly attached to, respectively, one of the right and left branches of the patient's vagus nerve ~~for to directly, bilaterally stimulate~~ion thereof right and left branches of the vagus nerve.

25. (Canceled)

26. (Currently amended) The system of claim 22, wherein said at least ~~one~~two electrodes ~~are~~is each adapted to be attached to a portion of the patient's body remote from the vagus nerve to indirectly, bilaterally stimulate the right and left branches of the vagus nerve .

27. (Currently amended) The system of claim 22, further including
a sensor for sensing the patient's body movement, and
a sense signal analysis circuit ~~for that analyzing~~ing a signal produced by the sensor, for determining whether the patient's movement is an involuntary movement characteristic of the movement disorder being treated, wherein said sense signal analysis circuit activatesing the pulse generator to stimulate the right and left branches of the vagus nerve if the movement is determined to be such an involuntary movement.

28. (Currently amended) The system of claim 22, further including activation means associated with the pulse generator for enabling patient activation of the pulse generator to stimulate the vagus nerve .

29. (Currently amended) Apparatus for treating patients suffering from movement disorder, comprising

a pulse generator capable of generating an electrical signal; and

at least ~~one~~two electrodes adapted to be implanted in a patient to treat said movement disorder by applying the electrical signal generated by said pulse generator to the right and left

branches of the patient's vagus nerve, wherein a first electrode of said at least one-two electrodes is coupled to said pulse generator and is adapted to be attached to the right branch of said vagus nerve at a location in a range from about two to about three inches above or below the patient's diaphragm, and a second electrode of said at least two electrodes is coupled to said pulse generator and is adapted to be attached to the left branch of said vagus nerve at a location in a range from about two to about three inches above or below the patient's diaphragm, for relieving symptoms of the movement disorder in the patient;

wherein, when implanted, said at least two electrodes apply said electrical signal bilaterally to the right and left branches of the vagus nerve in the vicinity of the patient's diaphragm.

30. (Previously Presented) The apparatus of claim 29, wherein said pulse generator is adapted to be programmed by a physician to provide electrical parameters defining said electrical signal.

31. (Currently amended) The apparatus of claim 29, further comprising ~~an~~ electrical leads coupled to each of said at least one-two electrodes and having a length sufficient to enable each of said at least one-two electrodes to be adapted to be attached to one of said right and left branches of the vagus nerve at said location.

32. (Previously Presented) The apparatus of claim 29, further comprising a programming unit coupled to said pulse generator for programming a plurality of parameters to define said electrical signal.

33. (Currently amended) The apparatus of claim 32, wherein said pulse generator is adapted to be implanted in the body of the patient and said programming unit is external to the patient's body and wirelessly coupled to said pulse generator.

34. (Currently amended) A system for treating a patient having a movement disorder comprising:

a pulse generator capable of generating an electrical signal;

at least ~~one~~two implanted electrodes, coupled to the pulse generator and wherein at least one of said electrodes is adapted to be attached to each of the left and right a vagus nerve branches of the patient at a location below the patient's diaphragm, wherein said implanted electrodes apply an electrical signal to each of the right and left branches of the vagus nerve for ~~applying said electrical signal to said vagus nerve to treat said movement disorder; and~~

a programming unit for programming said pulse generator to define said electrical signal.

35. (Currently amended) The system of claim 34 wherein said pulse generator is adapted to be implanted in the body of the patient.

36. (Previously Presented) The system of claim 34 wherein said pulse generator is external to the body of the patient and is wirelessly coupled to said at least one electrode.

37. (Previously Presented) The system of claim 34 wherein said programming unit is capable of programming at least one parameter selected from the group consisting of current magnitude, frequency, pulse width, on-time and off-time.

38. (New) A system for treating patients suffering from a movement disorder, comprising
a pulse generator capable of generating an electrical signal comprising a predetermined sequence of electrical pulses, and

at least one electrode electrically coupled to the pulse generator, said electrodes adapted to be implanted in the patient's body and adapted to be coupled to a vagus nerve of the patient at a location in a range from about two to about three inches above or below the patient's diaphragm, for alleviating symptoms of the movement disorder in the patient;

wherein, when implanted, said at least one electrode stimulates the patient's vagus nerve with an electrical pulse signal applied directly or indirectly thereto at a location in the immediate vicinity of the patient's diaphragm.

39. (New) The system of claim 37, wherein said at least one electrode delivers unilateral supra- or sub-diaphragmatic stimulation of either the left branch or the right branch of the vagus nerve.

40. (New) The system of claim 37, wherein said at least one electrode comprises at least a pair of electrodes, and said pair of electrodes delivers bilateral supra- or sub-diaphragmatic stimulation of the left and right branches of the vagus nerve.